

ACC NR: AT7015689

SOURCE CODE: UR/0000/67/000/000/0168/0178

AUTHOR: Basargin, I. V.; Dement'yev, I. M.; Mishin, G. I.

ORG: none

TITLE: Ballistic range for aerodynamic investigations

SOURCE: AN SSSR. Fiziko-tekhnicheskiy institut. Aerofizicheskiye issledovaniya sverkhzvukovykh techeniy (Aerophysical investigations of supersonic flow). Moscow, Izd-vo "Nauka", 168-178

TOPIC TAGS: supersonic aerodynamics, ballistic range, supersonic flow, shock wave, gas dynamics, time measurements

ABSTRACT:

A detailed description of the ballistic range of the Leningrad Physico-technical Institute im. A. F. Ioffe of the Soviet Academy of Sciences and its main features is presented. Its dimensions are: length = 18 m, diameter = 1m. A 57-mm powder gun is used for accelerating models from 20 to 53 mm in diameter to a maximum speed of 1800 m/sec. The range may be filled with various gases at pressures from 0.01 to 5 atm. The range is intended for various gasdynamic studies at high Reynolds num-

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UDC: 533.601.155

ACC NR: AT7015689

bers, for studies of the effect of  $\bar{R}_e$  numbers of flow structure, and for obtaining qualitative spectra, and photographic and radiotelemetric measurements. The model is photographed in two mutually normal directions in 14 uniformly distributed sections along the range. The photographic and recording systems are located inside the tube in order to avoid optical distortions due to observation windows. Photographs of the range, sketches of the registration section, optical system, light source, high-speed photographs of the flow past various models at different  $M(1.85 \text{ to } 3.68)$ , circuit diagrams of the blocking and gun control systems, and also block diagrams of the time measuring and recording systems are given and described in detail. Orig. art. has: 15 figures.

SUB CODE: 01, <sup>1320</sup>29/ SUBM DATE: none/ ORIG REF: 002/ ATD PRESS: 5129 [AB]

Card 2/2

Analysis and Testing

USSR

UDC 546.821:543.062

BASARGIN, N. N., YAKOVLEV, P. YA., and DEYNEKINA, R. S., Institute of Geology of Mining Deposits, Petrography, Mineralogy, and Geochemistry, Academy of Sciences USSR, Central Scientific Research Institute of Ferrous Metallurgy imeni Bardin, Moscow

"Dibromtichromine as a Reagent for Extraction-Photometric Determination of Titanium"

Moscow, Zavodskaya Laboratoriya, Vol 39, No 9, 1973, pp 1043-1044

Abstract: Dibromtichromine forms with titanium a complex that extracts n-butanol from 0.001-1-n HCl ( $H_2SO_4$ ) in the presence of 500-fold amounts of diphenylguanidine or 50-fold amounts of triphenylguanidine with respect to the reagent. The molar ratio of the titanium-dibromtichromine in the extracting compound is 1:2. The authors developed a rapid method for determining 0.0n-0.0n% Ti in steels. The relative error is  $\pm 5\%$ .

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USSR

BASARGIN, N. N., et al., Zavodskaya Laboratoriya, Vol 39, No 9, 1973,  
pp 1043-1044

Figure 1 illustrates the absorption spectra and Figure 2 shows the pH of the water phase as it is affected by the optical density. Table 1 shows the allowable weight amounts of materials and Table 2 gives the statistical characteristics of the method.

The article contains 2 illustrations, 2 tables, and 7 bibliographic references.

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1/2 013 UNCLASSIFIED PROCESSING DATE--09OCT70  
TITLE--SPECTROPHOTOMETRIC STUDY OF THE REACTION OF COBALT WITH QUINOLINAZO  
R -U-  
AUTHOR--(03)-BASARGIN, N.N., KADOMTSEVA, A.V., PETRASHEN, V.I.  
COUNTRY OF INFO--USSR  
SOURCE--ZH. ANAL. KHIM. 1970, 25(2), 285-93  
DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--SPECTROPHOTOMETRIC ANALYSIS, COBALT, COMPLEX COMPOUND,  
MAGNETIC SUSCEPTIBILITY, PROTON, HETEROCYCLIC NITROGEN COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1993/0918

STEP NO--UR/0075/70/025/002/0285/0293

CIRC ACCESSION NO--AP0113753

UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--090C170

CIRC ACCESSION NO--AP0113753

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CO FORMS A VIOLET COMPLEX WITH QUINOLINAZO R(1-(8,QUINOLYLAZO),2, HYDROXY,3, 6,NAPHTHALENE DISULFONIC ACID) IN THE PH RANGE 0.3-14 WITH MAX. ABSORBANCE AT 570 NM AND MOLAR ABSORPTIVITY  $3.02 \times 10^4$ . MAX. ABSORBANCE OF THE REAGENT IS AT 490 NM. AT 20 PLUS OR MINUS 1 DEGREES MU EQUALS 0.3 TO 0.1, THE EQUIL. CONST. OF THE REACTION IS  $2.2 \times 10^{11}$  AND THE INSTABILITY CONST. OF THE COMPLEX IS  $8.3 \times 10^{-5}$ . THE COMPLEX DOES NOT DESINTEGRATE AFTER ADJUSTING FROM PH 1.5 TO 6N H SUB2 SO SUB4 (HCL). MAGNETIC SUSCEPTIBILITY DATA SHOWED THAT CO EXISTS IN THE COMPLEX IN ITS TRIVALENT STATE. SIX PROTONS ARE LIBERATED IN REACTIONS IN AN ACID MEDIUM. THREE OF THEM SPLIT OFF THE OH GROUPS AND 3 OTHERS SPLIT OFF THE PROTONIZED ATOMS FOR THE HEREROCYCLIC N OF THE REAGENT MOLS. FACILITY: NOVOCHERKASSK POLITECH. INST., NOVOCHERKASSK, USSR.

UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0128600

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE IONIZATION CONSTS. OF QUINOLINAZO R (I) AS AN ANAL. REAGENT WERE DETD. GRAPHICALLY AND BY CALCN. FROM SPECTROPHOTOMETRIC DATA. THE ACID BASE IONIZATION OF I IS REPRESENTED BY: RH SUB5 PRIME2 POSITIVE IN EQUILIBRIUM RH SUB3 PRIME0 PLUS 2H (ONE PROTON OF THE AZO GROUP AND THE SULFO GROUP SPLITS OFF); RH SUB3 PRIME0 YIELDS RH PRIME2 NEGATIVE PLUS 2H PRIME POSITIVE (ONE PROTON SPLITS OFF FROM THE HETEROCYCLIC N AND THE SULFO GROUP); RH PRIME2 NEGATIVE IN EQUILIBRIUM R PRIME3 NEGATIVE PLUS H PRIME POSITIVE (ONE PROTON OF THE CH GROUP SPLITS OFF). THE PROTONIZATION CONSTS. OF HETEROCYCLIC N AND THE DISSOCC. CONSTS. OF THE HYDROXYL GROUP WERE PK SUBNH PRIME POSITIVE EQUALS 1.48 AND PK SUBOH EQUALS 11.49 IN AQ. SOLNS. WITH IONIC STRENGTH OF 0.1 (KCL) AT 20DEGREES. THE PK SUB1 AND PK SUB2 VALUES DETD. GRAPHICALLY ARE 1.50 AND 11.43, RESP. FACILITY: NOVOCHERKASSK POLYTECH. INST., NOVOCHERKASSK, USSR.

UNCLASSIFIED

1/2 025 UNCLASSIFIED PROCESSING DATE--20NOV70  
TITLE--TICHRMIN, A NEW COLORLESS REAGENT FOR THE PHOTOMETRIC  
DETERMINATION OF NIOBIUM -U-  
AUTHOR--(03)-YAKOVLEV, P.YA., BASARGIN, N.N., PANARINA, N.A.  
COUNTRY OF INFO--USSR  
SOURCE--ZH. ANAL. KHIM. 1970, 25(3), 505-10  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY, MATERIALS  
TOPIC TAGS--NIOBIUM, PHOTOMETRIC ANALYSIS, STEEL, IRON ALLOY  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--3001/0468 STEP NO--UR/0075/70/025/003/0505/0510  
CIRC ACCESSION NO--AP0126220

2/2 025

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0126220

ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. TICHROMIN (3,3 PRIME

(NOMETHYLIMINO)BIS(METHYLENE)DICHROMOTROPIC ACID) (I) WAS STUDIED AS A REAGENT FOR NB. I FORMS WITH NB A YELLOW COMPLEX IN ACID MEDIA, WITH MAX. ABSORBANCE AT 406-15 NM. THE MOST INTENSE COLOR OCCURS IN 2-4N HCL AND 2-3N H SUB2 SO SUB4. THE MOLAR ABSORPTIVITY AT 414 NM IS 1.7 TIMES 10 PRIME4 IN A HCL MEDIUM AND 1.5 TIMES 10 PRIME4 IN A H SUB2 SO SUB4 MEDIUM. BEER'S LAW IS OBEYED IN THE 0-120 MUG NB-25 ML 2N HCL RANGE AT A I CONCN. OF 4 TIMES 10 PRIME NEGATIVE4 M; 3000 FOLD AMTS. OF TARTARIC, ASCORBIC, AND THIOGLYCOLIC ACIDS, 5000 FOLD AMTS. OF N SUB2 H SUB4, NH SUB2 OH, AND NA SUB2 SO SUB3, AND 200 FOLD SNCL SUB2 DO NOT INTERFERE. THE DETN. OF 2 MUG NB-ML IS POSSIBLE IN THE PRESENCE OF 400 FOLD AMTS. OF CU, 150 FOLD CO AND NI, 100 FOLD V (IV), 35 FOLD CR(III), AND 25 FOLD ZR. EQUAL AMTS. OF TA, MO, AND TI INTERFERE, MO INTERFERENCE IS ELIMINATED WITH ARTARIC ACID AND TI BY MEASURING THE ABSORBANCE AT 2 WAVELENGTHS. THE METHOD CAN BE USED FOR THE SPECTROPHOTOMETRIC DETN. OF 0.1-2PERCENT NB IN STEELS AND FERROUS ALLOYS WITH A 3-7PERCENT RELATIVE ERROR. FACILITY: CENT. SCI.-RES. INST. FERROUS MET., MOSCOW, USSR.

UNCLASSIFIED

1/2 013 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--SPECTROPHOTOMETRIC STUDY OF THE COMPLEXING OF LANTHANIDES WITH  
CARBOXYARSENATO -U-  
AUTHOR--(03)-SHUKUROV, S.SH., SHEMYAKIN, F.M., BASARGIN, N.N.  
COUNTRY OF INFO--USSR  
SOURCE--DOKL. AKAD. NAUK TADZH. SSR 1970, 13(1), 36-9  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--SPECTROPHOTOMETRIC ANALYSIS, COMPLEX COMPOUND, LANTHANUM  
COMPOUND, RARE EARTH COMPOUND, AZO COMPOUND, SULFONIC ACID, NAPHTHALENE,  
ARSENIC COMPOUND  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1997/1123 STEP NO--UR/0425/70/013/001/0036/0039  
CIRC ACCESSION NO--AT0119977  
UNCLASSIFIED

2/2 013

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AT0119977

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN WEAKLY ACID SOLN. LA, CE, PR, AND NO FORM GREEN COMPLEXES WITH CARBOXYARSENazo (THE DI-NA SALT OF 7,(0,ARSONOPHENYLazo),2,(0,CARBOXYPHENYLazo), 1,8,DIHYDROXY,3,6,NAPHTHALENE DISULFONIC ACID). THE ABSORBANCE OF THE COMPLEX IS QUITE CONST. AT PH 2.5-4.8 AND 50DEGREES. THE ABSORPTION MAX. ARE AT 610 AND 660 NM. BEER'S LAW IS FOLLOWED FOR 2-30 MUG RARE EARTH PER 25 ML. THE RELATIVE ERROR IS PLUS OR MINUS 5PERCENT. FACILITY: TADZH. GUSMEDINST. IM. ABUAH IBN-SINO, USSR.

UNCLASSIFIED

USSR

UDC 621.384.634

BASARGIN, YU. G., KOMAR, YE. G., LOBASHEV, V. M., Corresponding Member of the Academy of Sciences USSR, and SHUKEYLO, I. A., Scientific Research Institute of Electrophysical Equipment imeni D. V. Yefremov, Leningrad, and Leningrad Institute of Nuclear Physics imeni B. P. Konstantinov

"Medium-Energy Proton Synchrotron as Source of Intense Kaon Beams"

Moscow, Doklady Akademii Nauk SSSR, Vol 209, No 4, 1973, pp 819-821

Abstract: The best source for obtaining medium-energy kaons is a 5- to 7-GeV proton accelerator. It is difficult to determine current requirements at the present time, but if existing programs for the modernization of operating accelerators are considered, then apparently the immediate problem is to increase intensity by  $\sim 2$  orders; that is, a medium current of 100 microamperes. This is not beyond present-day technical capabilities if a fast synchrotron with an injector-linear accelerator of the "meson factory" type is used.

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USSR

UDC: 519.1

BASENSHPILER, V. Ya.

"Concerning Some Properties of  $\Gamma$ -Structures"

Irkutsk, Tr. po prikl. mat. i kibernet. Sib. energ. in-t Sib. otd. AN SSSR (Works on Applied Mathematics and Cybernetics. Siberian Power Engineering Institute of the Siberian Department of the Academy of Sciences of the USSR), 1972, pp 30-42, bibl. of 5 titles (manuscript deposited in VINITI 26 Dec 72, No 5285-72 Dep.) (from RZh-Kibernetika, No 5, May 73, abstract No 5V505 DEP by the author)

Translation: An investigation is made of the properties of an ordinary graph -- properties which can be defined in terms of a structure juxtaposed to this graph in some special way. These are properties such as the presence in the graph of Hamiltonian and Eulerian cycles, the properties of the graph being planar and a König graph, and others.

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USSR

UDC: 519.1

BASENSHPILER, V. Ya., CHOYNZONOVA, Ye. L.

"On the Problem of Reconstructing Graphs"

Irkutsk, Tr. po prikl. mat. i kibernet. Sib. energ. in-t Sib. otd. AN SSSR (Works on Applied Mathematics and Cybernetics, Siberian Power Engineering Institute of the Siberian Department of the Academy of Sciences of the USSR), 1972, pp 49-55, ill., bibl. of 2 titles (manuscript deposited in VINITI 26 Dec 72, No 5285-72 Dep.) (from RZh-Kibernetika, No 5, May 73, abstract No 5V507 DEP by the authors)

Translation: The paper poses the problem of reconstructing an ordinary graph  $G$  from all its coupled graphs (i. e. graphs obtained from  $G$  by identification of two of its adjacent vertices). Those characteristics of the graph are studied which can be determined from the set of its coupled graphs, and classes of graphs are indicated for which this problem is solvable.

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USSR

UDC: 519.1

BASENSHPILER, V. Ya., KESEL'MAN, D. Ya.

"On Whitney Theorems Relating to Doubly Isomorphic Graphs"

Irkutsk, Tr. po prikl. mat. i kibernet. Sib. energ. in-t Sib.  
otd. AN SSSR (Works on Applied Mathematics and Cybernetics.  
Siberian Power Engineering Institute of the Siberian Department  
of the Academy of Sciences of the USSR), 1972, pp 43-48, ill.,  
bibl. of 4 titles (manuscript deposited in VINITI 26 Dec 72,  
No 5285-72 Dep. by the authors)

Translation: Simpler and shorter proofs are given of two  
theorems of Whitney on isomorphism and double isomorphism  
of cyclically isomorphic graphs.

1/1

Combustion

USSR

UDC 541.126:547.211

BASEVICH, V. YA., KOGARKO, S. M., and FURMAN, G. A., Institute of Chemical Physics, Academy of Sciences USSR

"Mechanism of Methane Combustion. 2 Communication. 'Uni-Dimensional' Atomic Flame"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 10, Oct 71, pp 21-91-2196

Abstract: To obtain complete data on the combustion of methane, the atomic flame method was utilized. In the course of the experiments it was determined that  $\text{CO}_2$  may form in considerable quantities under conditions when the CO added artificially to the methane remains practically unchanged. Hence a route for the appearance of  $\text{CO}_2$  is postulated by-passing the stage of CO formation. Combustion of an atomic flame, especially in case of a "coaxial" system is a very complex process in which during the initial stage the crucial role is played by radial and axial diffusion and heat transfer. The composition of combustion products in an active flame was determined and reported in relative concentrations, giving satisfactory agreement between the theoretical and experimental values. The lack of experimental data makes it impossible to select precisely the mechanism for the combustion of methane.

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USSR

BASEVICH, V. YA., et al., Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 10, Oct 71, pp 2191-2196

A mechanism based on uni-dimensional flame has been derived, which agreed with observed data: lowering of the temperature decreases the reaction depth, increase in the concentration of  $[O]_0$  with constant  $[CH_4]_0$  or decrease in  $[CH_4]_0$  concentration with constant  $[O]_0$  results in more complete combustion; decrease in  $[O_2]_0$  concentration is accompanied by an increased production of  $[H_2]$  and  $[CO]$ .

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USSR

UDC 577.1:615.7/9

BASHANOV, N. O.

"Toxicologic and Pharmacological Characteristics of alpha-Nitratopropionic and alpha-Nitratoisobutyric Acids"

V. sb. Toksikol. i gigiyena produktov neftekhimii neftekhim. proiz-v (Toxicology and Hygiene of the Products of Petrochemistry and the Petrochemical Production -- collection of works), Yaroslavl', 1972, pp 60-62 (from Rzh-Biologicheskaya Khimiya, No 8, 1973, Abstract: No 8F2173)

Translation: In acute experiments on mice and rats a study was made of the toxicity and certain pharmacological properties and the detoxication rate and cumulative properties of  $\alpha$ -nitratopropionic acid (I) and  $\alpha$ -nitratoisobutyric acid (II). In the case of intraperitoneal administration, I and II turned out to be more toxic than on internal administration in the stomach. The sensitivity of the rats to I and II in the case of intraperitoneal administration is higher than that of mice. The detoxication halfperiod and constants of I and II for mice were identical, and I and II had no dermoresorptive effect. In the case of intravenous administration to cats in the amount of 15 mg/kg, I and II caused a brief drop in blood pressure and did not change 1/2

BASH, V. Ya., ISHCHENKO, I. I., KUYUN, A. I., Institute of Mechanics, Academy of Sciences of the UkrSSR, Kiev

"Determining the Yield Stress of Materials by a Thermoelectric Method"

Kiev, Prikladnaya Mekhanika, Vol 8, No 4, Apr 72, pp 128-131

Abstract: The paper presents the results of a study of various materials (technical copper in the cold-deformed state, L68 brass, VT1-00 technical titanium, technical molybdenum, U8A steel, NP-2 nickel and tungsten) under tension in the elastic and elastoplastic regions of deformation. Analysis of stress-strain and stress-temperature differential deformation curves shows that the thermoelectric method can be recommended for determining the yield stress of these materials with appropriate allowance for residual deformation. Two figures, three tables, bibliography of seven titles.

USSR

BASHANOV, N. O., Toxicology and Hygiene of the Products of Petrochemistry and the Petrochemical Production -- collection of works, Yaroslavl', 1972, pp 60-62

the reaction of the cardiovascular system and respiration to cytosine solution, adrenaline and acetylcholine.

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USSR

UDC 621.395:519.152

BASHARIN, G. P. and LYSENKOVA, V. T.

"Servicing Several Heterogeneous Lines by Available Beams With Limited Priority"

Moscow, Institut problem peredachi informatsii, Akademiya Nauk SSSR, Sistemy raspredeleniya informatsii, 1972, "Nauka," pp 3-16

Abstract: A discussion is given of the problem of servicing several incoming heterogeneous information lines of the simplest kind by a completely open c-line system with limited priority. The solution is to be applicable to computing the capacitance of the buffer memory as well as several other cases. The authors begin their analysis by considering a system consisting of  $c$  identical devices and  $r$  points of expectation. Input to the system are  $k$  service claims, and the  $i$ -th claim applied to the system is directed to any free communication instrument. The Markov process describing the operation of the system is obtained. All the instruments are assumed identical, and the state of the system is therefore a function only of the number of claims to the various service forms. A lexicographic ordering of all possible system states is set up.  
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USSR

BASHARIN, G. P., et al, Institut problem peredachi informatsii, Akademiya Nauk SSSR, Sistemy raspredenleniya informatsii, "Nauka," pp 3-16

A system of equilibrium equations is derived and an algorithm for solving the system is sought. Results of the computation show that the probability of losses with a constant load falls off rapidly with increasing  $r$  and that an increase in  $r$  leads, in turn, to an increase in the average time the instruments are busy.

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USSR

UDC: 519.2

BASHARIN, G. P., LYSENKOVA, V. T.

"On Serving Several Nonhomogeneous Streams in a Completely Accessible Bundle with a Limited Queue"

Moscow, Sist. raspredeleniya inform.--sbornik (Information Distribution Systems--collection of works), "Nauka", 1972, pp 3-16 (from RZh-Kibernetika, No 10, Oct 72, abstract No 10V84 [authors' abstract])

Translation: A queuing system is considered which is made up of  $c$  servers and  $r$  waiting spots. Coming into the system are  $k$  simple streams of customers with an overall probability  $\Lambda$  given by  $\Lambda = \sum_{i=1}^k \lambda_i$ . The  $i$ -th customer arriving at the system ( $i=1, \dots, k$ ) is sent for service to any free server. Customer service time is distributed in accordance with an exponential law with parameter  $\mu_i$  and does not depend on the server handling the given customer. If all servers are busy at the time of arrival of the customer, he stands in a line which is common to the customers of

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USSR

UDC 621.396.6-181.5

4  
NAZAROV, G. V., SOKOLOV, A. V., KOZHEVNIKOV, A. P., SHANOV, A. M., NIKITIN, V. G., SAFONOV, V. A., SEREGIN, V. P., BASHARIN, V. I.

"Development of Equipment for Assembling Integrated Circuits by Welding with Pulsed Indirect Heating and Ultrasound"

Elektron. tekhnika. Nauchno-tekhn. sb. Mikroelektronika (Electronic Engineering. Scientific and Technical Collection. Microelectronics), 1970, vyp. 3 (24), pp 70-76 (from RZh-Radiotekhnika, No 4, Apr 71, Abstract No 4V287)

Translation: A study was made of the advantages of welding by pulsed indirect heating and ultrasonic welding when assembling microcircuits. The technical characteristics of the developed equipment and the structural design of the operating tool are presented. The results of experimental operation of the devices are discussed.

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USSR

UDC 621.371:538.569.4

ABLYAZOV, V. S., BASHARINOV, A. Ye., GORELIK, A. G., GORDON, Z. I.,  
KALASHNIKOV, V. V., KUTUZA, B. G., MITNIK, L. M., PENYAZ', L. A.,  
FROLOV, A. V., and FROLOV, Yu. A.

"Absorption and Radiation of the Atmosphere in the 0.5-10 cm  
Range"

Moscow, V sb. X Vses. konf. po rasprostr. radiovoln. Tezisy dokl.  
(Tenth All-Union Conference on the Propagation of Radio Waves;  
Report Theses--collection of works) "Nauka," 1972, pp 3-7 (from  
RZh--Radiotekhnika, No 10, 1972, Abstract No 10A309)

Translation: The method and the results of measuring the absorption  
and radiation of the atmosphere for waves of 0.5-10 cm and, in par-  
ticular, in the absorption bands of oxygen and water vapor, are  
given. The measurements were made for the purpose of investigating  
the propagation of uhf waves under various meteorological condi-  
tions, which were recorded simultaneously with the radio measure-  
ments. Curves are given of the attenuation and radio brightness  
temperature for rain clouds. Two illustrations, bibliography of  
five. N. S.

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USSR

UDC: 533.951.2/.3

BASHARINOV, A. Ye., ZALOGIN, N. N., KISLOV, V. Ya., LUKINOV, I. N.

"Investigation of Mechanisms of Excitation of Oscillations of Gyroharmonics in a Plasma-Beam Discharge"

V sb. Kolebaniya i volny v plazme (Oscillations and Waves in a Plasma--collection of works), Minsk, "Nauka i tekhn.", 1971, pp 43-46 (from RZh-Mekhanika, No 7, Jul 71, Abstract No 7B186)

Translation: An experimental study is made of oscillations excited in a plasma-beam discharge in a magnetic field on frequencies  $\omega > \omega_0 \approx \omega_p$ . It is shown that there is spatial amplification on harmonics of the cyclotron frequency and on the structure of fields in the form of the composition of slow and fast waves. Emission of the fast transverse wave takes place in the region of abrupt change of fields of the fast wave. Authors' abstract.

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1/3 031  
UNCLASSIFIED  
PROCESSING DATE--11DEC70  
TITLE--JOINT RADIOTHERMAL AND RADAR MEASUREMENTS OF THE METEOROLOGICAL  
PARAMETERS OF CLOUDS AND PRECIPITATION -U-  
AUTHOR--(04)--BASHARINOV, A.YE., GORELIK, A.G., KALASHNIKOV, V.V., KUTUZA,  
B.G.  
COUNTRY OF INFO--USSR  
SOURCE--IZVESTIYA AKADEMII NAUK SSSR, FIZIKA ATMOSFERY I OKEANA, VOL VI,  
NO. 5, 1970, PP 526-530  
DATE PUBLISHED-----70

SUBJECT AREAS--NAVIGATION, ATMOSPHERIC SCIENCES

TOPIC TAGS--ATMOSPHERIC CLOUD, ATMOSPHERIC PRECIPITATION, RADIOMETRY,  
METEOROLOGIC RADAR, DROPLET, RADIOSONDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY FICHE NO----FD70/605041/F02 STEP NO--UR/0362/70/006/005/0526/0530

CIRC ACCESSION NO--AP0142759

UNCLASSIFIED

2/3 031

UNCLASSIFIED

PROCESSING DATE--11DEC70

CIRC ACCESSION NO--AP0142759

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SIMULTANEOUS RADIOMETRIC AND RADAR OBSERVATIONS, COMBINED WITH OTHER METEOROLOGICAL MEASUREMENTS, AS DEMONSTRATED IN THIS ARTICLE, MAKE IT POSSIBLE TO DETERMINE THE MEAN LIQUID WATER CONTENT OF LIQUID DROP CLOUDS. IF THE TOTAL WATER CONTENT IS DETERMINED FROM RADIOMETRIC MEASUREMENTS AND RADAR IS USED IN MEASURING THE EXTENT OF THE DROPLET PART OF THE CLOUD, THE RATIO OF THESE VALUES WILL GIVE THE MEAN LIQUID WATER CONTENT OF THE DROPLET PART OF THE CLOUD IN THE DIRECTION OF MEASUREMENT BECAUSE THE RADIO EMISSION OF THE CRYSTALLINE PART OF THE CLOUD CAN BE NEGLECTED. WITH SIMULTANEOUS MEASUREMENTS OF ABSORPTION IN A CLOUD AT SEVERAL WAVELENGTHS IT IS ALSO POSSIBLE TO ESTIMATE THE EFFECTIVE TEMPERATURE OF THE CLOUD. RADAR MEASUREMENTS, TOGETHER WITH RADIOSONDE DATA, GIVE THE TEMPERATURE DISTRIBUTION IN THE CLOUD AND REFINE THE EFFECTIVE TEMPERATURE. RADAR MEASUREMENTS OF THE DROP SIZE DISTRIBUTION CAN BE USED IN AN INTERPRETATION OF THE RADIO BRIGHTNESS TEMPERATURE OF RAIN. JOINT RADAR AND RADIOMETRIC MEASUREMENTS WERE MADE IN 1966 AT PUSHCHINO USING THE RADIOTELESCOPE OF THE PHYSICS INSTITUTE AT WAVELENGTHS 0.8 AND 1.6 CM AND IN 1968 AT KIMRA USING A RADIO TELESCOPE OF THE CENTRAL AEROLOGICAL OBSERVATORY (ANTENNA DIAMETER 3 M) AT THE WAVELENGTHS 0.8 TO 1.35 CM. THE TOTAL TIME OF CLOUD OBSERVATION WAS MORE THAN 120 HOURS. A RADAR SET IN THE 3-CM RANGE WAS USED. THE RADIOMETRIC AND RADAR OBSERVATIONS WERE ACCOMPANIED BY MEASUREMENTS OF THE METEOROLOGICAL PARAMETERS BY RADIOSONDES. IN ADDITION, THE DROP SIZE DISTRIBUTION WAS MEASURED BY SAMPLING ON FILTER PAPER.

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PROCESSING DATE--11DEC70

CIRC ACCESSION NO--AP0142759

ABSTRACT/EXTRACT--ALTITUDE OF THE LOWER CLOUD BOUNDARY WAS DETERMINED AND THE RADIO EMISSION OF CLOUDS WAS ASCERTAINED AT WAVELENGTHS 0.8, 1.35 AND 1.6 CM WITH A FIXED ANTENNA WITH MOVEMENT IN AZIMUTH AT A CONSTANT RATE. THE RESULTS OF ALL THESE INTEGRATED OBSERVATIONS ARE GIVEN. THIS EXPERIMENT WITH THE SIMULTANEOUS USE OF THE RADIOASTRONOMICAL AND RADAR METHODS REVEALED THAT THIS APPROACH IS VERY EFFECTIVE IN THE STUDY OF CLOUDS AND PRECIPITATION.

UNCLASSIFIED

1/3 042 UNCLASSIFIED PROCESSING DATE--13NOV70  
TITLE--INVESTIGATION OF THE FIELD OF TERRESTRIAL RADIOTHERMAL RADIATION,  
STUDY OF THE FIELD OF TERRESTRIAL RADIOTHERMAL RADIATION -U-  
AUTHOR--(04)-BASHARINOV, A.YE., GURVICH, A.S., TUCHKOV, L.T., SHIFRIN, K.S.

COUNTRY OF INFO--USSR **B**

SOURCE--INSTITUTE OF PHYSICS OF THE ATMOSPHERE AND INSTITUTE OF  
OCEANOLOGY; MOSCOW, IZVESTIYA AKADEMII NAUK SSSR, FIZIKA ATMOSFERY I  
DATE PUBLISHED-----70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY, ATMOSPHERIC SCIENCES

TOPIC TAGS--SUPERHIGH FREQUENCY, EARTH RADIATION, THERMAL RADIATION,  
ATMOSPHERIC RADIATION, RADIOMETER, ANTARCTIC GEOLOGY, EMISSIVITY, OCEAN  
SURFACE TEMPERATURE, RADIOSONDE, ICE, WATER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1994/0362

STEP NO--UR/0362/70/006/004/0366/0380

CIRC ACCESSION NO--AP0114656

UNCLASSIFIED

2/3 042

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0114656

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THIS PAPER GIVES THE RESULTS OF THEORETICAL INVESTIGATIONS OF AIRCRAFT AND SATELLITE MEASUREMENTS OF TERRESTRIAL RADIOTHERMAL RADIATION. THE FOLLOWING SUBJECTS ARE COVERED: SUPERHIGH FREQUENCY RADIATION OF THE EARTH'S SURFACE, SUPERHIGH FREQUENCY RADIATION OF THE ATMOSPHERE, GEOPHYSICAL INTERPRETATION OF THE SPECTRUM OF OUTGOING SUPERHIGH FREQUENCY RADIATION AND CHARACTERISTICS OF SUPERHIGH FREQUENCY RADIOMETRIC APPARATUS. IMPORTANT RESULTS FROM MEASUREMENTS ABOARD "KOSMOS-243" ARE GIVEN. THIS SATELLITE WAS USED IN MEASURING RADIOTHERMAL RADIATION OF THE EARTH AND ITS ATMOSPHERE AT  $\lambda$  1,2,3,4, EQUALS 8.5, 3.4, 1.35 AND 0.8 CM. THE SATELLITE CARRIED FOUR RADIOMETERS WITH A RESPONSE OF 0.7 DEGREE K AT  $\lambda$  SUB1,  $\lambda$  SUB2 AND ABOUT 2 DEGREE K AT  $\lambda$  SUB3,  $\lambda$  SUB4. MEASUREMENTS AT 8.5 AND 3.4 CM WERE USED FOR THE MOST PART FOR DETERMINING THE PARAMETERS OF THE UNDERLYING SURFACE. SINCE THE WATER ICE BRIGHTNESS CONTRAST AT THESE WAVELENGTHS IS GREATER THAN 100 DEGREE K, IT IS NOT DIFFICULT TO DETECT THE WATER ICE BOUNDARY AND DETERMINE ICE CONTINUITY. A FIGURE IN THE TEXT IS A MAP OF ICE FORMATIONS AROUND THE ANTARCTIC CONTINENT COMPILED FROM INTERPRETATION OF SPACE PHOTOGRAPHS. IT WAS FOUND THAT ICE CAN BE RELIABLY DETECTED FROM MEASUREMENTS IN THE MICRO WAVE RANGE EVEN WHEN CLOUDS ARE PRESENT. THE QUITE UNIFORM EMISSIVITY OF THE ICE FREE OCEAN MAKES IT POSSIBLE TO DETERMINE ITS SURFACE TEMPERATURE. MEASUREMENTS AT 3.5 CM ARE OPTIMUM FOR THIS PURPOSE SINCE THERE THE DEPENDENCE OF BRIGHTNESS TEMPERATURE ON WATER TEMPERATURE IS MOST CLEARLY EXPRESSED.

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3/3 042

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0114656

ABSTRACT/EXTRACT--A FIGURE IN THE TEXT SHOWS A PROFILE OF SURFACE TEMPERATURE OF THE PACIFIC OCEAN CONSTRUCTED FROM MEASUREMENTS AT 8.5 CM; IT RUNS FROM THE BERING SEA TO THE ANTARCTIC OCEAN. SATELLITE DATA WERE USED IN DETERMINING THE MOISTURE CONTENT OF A COLUMN OF THE ATMOSPHERE. COMPARISON OF SATELLITE AND RADIOSONDE MEASUREMENTS OF MOISTURE CONTENT IN A COLUMN OF THE ATMOSPHERE SHOWS A GOOD AGREEMENT. DETECTION OF CLOUD COVER AND PRECIPITATION OVER THE OCEANS WAS BY MEASUREMENTS AT WAVELENGTHS 0.8 AND 3.4 CM. AT LEAST TEN GRADATIONS OF THE INTENSITY OF HYDROMETEORS WITH A WATER CONTENT FROM 0.03 TO 0.3 G-CM PRIME2 WERE DISTINGUISHABLE.

UNCLASSIFIED

USSR

UDC: 621.316.8:621.315.5

PERTSEV, A. V., KISELEV, V. S., ~~RASHAYNIKOV, V. A.~~

"Adjustment of Tantalum Film Resistors"

Kiev, IVUZ Radioelektronika, Vol 15, No 5, May 72, pp 626-630

Abstract: The authors discuss questions of adjustment of tantalum film resistors by the method of localized anodizing of resistor sections. The method of calculation is given together with engineering formulas and graphs for calculating the dimensions of localized anodized sections, or the number of such sections when dimensions are predetermined, taking resistor values before and after anodizing as a point of departure. Experimental results agree with the calculations.

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USSR

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UDC 621.791.1.01.5

BASHENKO, V. V., and VAYNSHTEYN, V. I., Leningrad Polytechnical Institute, M. I. Kalinin; "Krasnaya Zarya" Plant

"Analysis of Forces Acting on the Welding Pool in Electron-beam Welding"

Moscow, Svarochnoye Proizvodstvo, No 8, Aug 70, pp 1-2

Abstract: The formation of a crater in electron-beam welding with a high energy density (over 1 million w/cm<sup>2</sup>) may be explained thus: as the power is increased, the temperature in the center of the spot rises, leading to a higher metal vaporization rate and a greater area of molten metal. As the power is further increased, the vaporization rate rises to a point where the surface of the metal begins to give under recoil pressure; at first the depression is shallow since it must overcome the forces of surface tension. It is not until the radius attains its minimum value that the crater begins to deepen at a high rate since there is now only the hydrostatic pressure that must be overcome. The limit temperature in the center of the crater's bottom dissolves the metal; the strong movement of the metal in the crater and its displacement causes the vertical wall.

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USSR

UDC 612.57

BASHENOV, YU. I., YES'KOVA, L. A., Laboratory of General Physiology,  
Institute of Physiology, Siberian Department of the Academy of Sciences  
USSR Novosibirsk

"Effect of Different Periods of Cold Adaptation on Muscular Thermogenesis in  
White Rats"

Leningrad, Fiziologicheskii Zhurnal SSSR imeni I. M. Sechenov, Vol 58, No 9,  
1972, pp 1,410-1414

Abstract: A study was made of the quantitative characteristic of muscular thermogenesis in rats subjected to varying periods of cold adaptation. Adaptation to cold significantly decreases the electrical activity of the muscles in response to cold. This effect is more pronounced in prolonged (20-22 weeks) adaptation than in adaptation periods (4-6 weeks). In rats adapted to cold for 20-22 weeks the thermal effect of the muscular contractions (according to the oxygen consumption) is 1.9 times higher than in rats with shorter adaptation and 2.7 times higher than the control animals. The establishment of a relation between oxygen consumption by the entire organism and the total activity of a large number of muscle groups is further indication of the role of the skeletal musculature in chemical thermoregulation and its significance in general thermogenesis as a result of cold adaptation.  
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1/2 011 UNCLASSIFIED PROCESSING DATE--13NOV70  
TITLE--DEHYDRATION AND DESALTING OF PETROLEUM EMULSIONS -U-  
AUTHOR--(05)-BULSHEV, S.F., BASHENOV, YU.M., KRYLOV, O.A., BASHMAKOV, P.V.,  
DONCHENKO, N.A.  
COUNTRY OF INFO--USSR  
SOURCE--U.S.S.R. 263,794  
REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRATZSY, TOVARNYE ZNAKI 1970,  
DATE PUBLISHED--10FEB70  
SUBJECT AREAS--MATERIALS  
TOPIC TAGS--CHEMICAL-PATENT, SURFACTANT, PETROLEUM EMULSION, PETROLEUM  
DESALTING  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--3005/0887 STEP NO--UR/0482/70/000/000/0000/0000  
CIRC ACCESSION NO--AA0132977

UNCLASSIFIED

2/2 011

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AA0132977

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PETROLEUM EMULSIONS ARE DESALTED AND DEHYDRATED, REDUCING CORROSION OF PETROLEUM EQUIPMENT, BY INTRODUCING POLYETHYLENIMINE AS A SURFACTANT.

UNCLASSIFIED

Acc. Nr: **AP0052337**

**B**

Ref. Code: **UR0238**

PRIMARY SOURCE: *Fiziologichnyi Zhurnal*, 1970, Vol 16, No 2, pp **281-286**

**EFFECT OF EXPERIMENTAL HYPOTHERMY ON THE SECRETORY AND RESORPTIVE FUNCTION OF SMALL INTESTINES**

**R. O. Faytel'berg, V. D. Bashev**

**Department of Human and Animal Physiology,**  
**the I. I. Mechnikov State University, Odessa**

The secretory and resorptive activity of the small intestine was studied with hypothermy. The experiments were conducted on dogs with an isolated intestinal loop according to Thiry.

It is established, that after hypothermy of 26—24°C the amount of intestinal juice drops, proteolytic activity of enzymes increases and amylolytic and lipolytic activities decrease. These changes mostly took place on the 2—3th day and were preserved during 6—8 days. The secretory activity of the intestines restores on the 10—12th day. Glucose and glycin resorption during hypothermy sharply lowers. It remains lowered during 6—8 days. Resorptive activity of the intestines restores on the 8—10th day.

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**19820923**

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USSR

UFG 621.701.45.0.071

LINKHOBENKO, I. M., KOSLOV, I. T., BASHILOV, I. M., and ZHAROV, A. A.

"Machine for Spot-Welding Large Parts With Curvilinear Profiles"

Riev, Avtomaticheskaya Svarka, No 10, Oct 70, pp 67-68

Abstract: A description is given of a spot-welding machine developed by the Kalinin Polytechnical Institute in cooperation with the local branch of the All-Union Scientific Research Institute and the M. E. Bauman Moscow Higher Technical School. The tops of automobiles are given as examples of what is meant by curvilinear-profiled parts. Welding can be done on the machine without readjustments in going from one type of part to another. The machine has two small type GSK-40 double-electrode welding heads mounted on a radial girder and the rim of a ring capable of turning on its own axis. The machine has manual, automatic, and emergency drives, and other details of its operation, together with a diagram of the machine and its drive system, are given.

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USSR

UDC 541.49:547.354.9'131:547.1'

118

PETROSYAN, V. S., BASHILOV, V. V., and REUTOV, O. A., Moscow State University imeni M. V. Lomonosov, Moscow

"A Complex of Trans- $\beta$ -Chlorvinylmercury Chloride and Hexamethyltriamidophosphate"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 2, 1973, p 481

Abstract: The addition of 0.489 g of hexamethyltriamidophosphate (HMTAP), in 1.5 ml petroleum ether, to 0.807 g of trans- $\beta$ -chlorvinylmercury chloride (CVMC) (1 ml petroleum ether) -- 1:1 molar ratio -- results in the formation of white crystals which, after washing with 3 ml hexane and filtration, are obtained in a 1.2 g (100%) yield, and have a m.p. of 45-46°. According to analytical data and PMR spectra the complex has the following composition:  $C_2H_2HgCl_2 \cdot [(CH_3)_2N]_3PO$ . The complex is highly soluble in HMTAP, DMSO, and dioxane. Proton shifts indicate that in solution the complexes dissociate into the components. Analogous conclusions were previously reached with CVMC-pyridine complexes in ether and DMSO.

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1/2 024 UNCLASSIFIED PROCESSING DATE--30OCT70  
TITLE--INSTANCE OF PROTON ELIMINATION FROM A HOMOMERCURIUM ION -U-  
AUTHOR--(03)--SOKOLOV, V.I., BASHILOV, V.V., REUTOV, O.A.  
COUNTRY OF INFO--USSR  
SOURCE--ZH. ORG. KHIM. 1970, 6(4), 883-4  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--NUCLEAR MAGNETIC RESONANCE, SPECTROSCOPIC ANALYSIS, BENZENE  
DERIVATIVE, CYCLOPROPANE, ORGANOMERCURY COMPOUND, FLUORINATED ORGANIC  
COMPOUND, CHEMICAL REACTION MECHANISM, CHEMICAL SYNTHESIS  
CENTRAL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--2000/2160 STEP NO--UR/0366/70/006/004/0883/0884  
CIRC ACCESSION NO--AP0125743  
UNCLASSIFIED

2/2 024

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0125743

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TREATMENT OF 1,1-DIPHENYLCYCLOPROPANE WITH (F SUB3 CCO SUB2) SUB2 HG IN MECH GAVE PH SUB2 C:CHCH SUB2 HGO SUB2 CCF SUB3 (I) IDENTIFIED BY NMR SPECTROSCOPY, BUT NOT ISOLATED. TREATMENT OF I WITH EXCESS IODINE GAVE PH SUB2 C:CHCH SUB2 I. THE MECHANISM OF I FORMATION INVOLVES THE ELIMINATION OF A PROTON FROM THE INTERMEDIATE "HGMOMERCURIUM" ION.

UNCLASSIFIED

USSR

UDC 621.382.333.34

BURKHANOV, SH.D., ~~BASHIROV, A.M.~~, GARSHEININ, V.V., GORCKHOV, V.A., ROBOV, V.I.

"Investigation Of The Causes For Breakdown Of Thyristors During Operation In A Pulse Regime"

V sb. Poluprovodn. pribory v tekhn. elektrosvyazi (Semiconductor Devices In Electrical Communications Technology--Collection Of Works), Moscow, "Svyaz", 1970, pp 145-157 (from RZh--Elektronika i yeye primeneniye, No 2, February 1971, Abstract No 2B246)

Translation: It is shown that loss of efficiency of a thyristor in a pulse regime results as a consequence of burning through in the p-n-p-n structure of a channel 0.1--0.3 mm in diameter, while one of the possible causes for this is thermal generation of the carriers. 9 ill. 10 ref. S.A.

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1/2 035 UNCLASSIFIED PROCESSING DATE--16OCT70  
TITLE--EXPERIMENTAL STUDY OF THE DISTRIBUTION OF MOBILE CARRIERS IN THE  
BROAD BASE OF AN ENCLOSED P-N-P-N STRUCTURE -U-  
AUTHOR-(03)-BASHIROV, A.M., GOROKHOV, V.A., RODOV, V.I.  
COUNTRY OF INFO--USSR **B**  
SOURCE--FIZ. TEKH. POLUPROV. 1970, 4(2), 350-2  
DATE PUBLISHED-----70  
SUBJECT AREAS--PHYSICS, ELECTRONICS AND ELECTRICAL ENGR.  
TOPIC TAGS--THYRISTOR, RADIATION INTENSITY, CARRIER DENSITY, PN JUNCTION,  
VOLT AMPERE CHARACTERISTIC, RECOMBINATION RADIATION, NEUTRON IRRADIATION  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRA--1988/0068 STEP NO--UR/0449/70/004/002/0350/0352  
CIRC ACCESSION NO--AP0105163  
UNCLASSIFIED

2/2 035

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0105163

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DISTRIBUTION OF THE RADIATION INTENSITY FROM A THYRISTOR CROSS SECTION WAS DETD. PHOTOGRAPHICALLY IN A DIRECTION PERPENDICULAR TO THE PLANES OF THE P-N JUNCTIONS TO DET. THE CONCN. DISTRIBUTION OF THE MOBILE CARRIERS. THE INTENSITY DISTRIBUTION CURVES WERE OBTAINED FOR 3 DIFFERENT C.DS. FOR THYRISTORS WITH A RESIDUAL VOLTAGE OF SIMILAR TO 1 V. THE INTENSITY CURVE HAS 2 MAX., THE LOWER ONE CORRESPONDING TO THE CENTRAL P-N JUNCTION AND THE HIGHER TO THE EMITTER BELONGING TO THE N BASE. THE DECREASE IN INTENSITY IN THE CENTER OF THE N BASE INDICATES THE PRESENCE OF A MIN. IN THE CONCN. DISTRIBUTION OF THE MINORITY CARRIERS. AS THE C.D. INCREASES, THE INTENSITY DISTRIBUTION CURVES SHIFT IN PARALLEL TOWARD HIGHER INTENSITIES, INDICATING AN INCREASE IN THE CONCN. OF THE MINORITY CARRIERS IN THE BROAD BASE. CURVES OBTAINED FOR A RESIDUAL VOLTAGE OF 3 V SHOW THAT THE DIFFUSION PATH (LIFETIME) IS LESS AT HIGHER VOLTAGES. THE LIFETIME DECREASES WITH AN INCREASE IN THE INJECTION LEVEL. THE INTENSITY WAS MEASURED FOR THE RECOMBINATION RADIATION BEFORE AND AFTER IRRADN. WITH FAST NEUTRONS. THE DISTRIBUTIONS OF THE RECOMBINATION RADIATION INTENSITY IN THE IRRADIATED SAMPLES IS SIMILAR TO THAT 3 V, INDICATING THAT THE CHANGE IN THE LIFETIME BROUGHT ABOUT BY RADIATION DEFECTS AFFECTS THE RESIDUAL VOLTAGE. THE CONCLUSIONS AGREE WITH THE CALCD. DATA (V. KUZ'MIN, 1963).

USSR

UDC: 621.373.826

BASHIROV, B. I., GLEBOVA, N. N., MELAMUD, G. B., TISHKOV, P. G.

"Use of a Ring Laser for Measuring Gas Flowrate by Mass"

Tr. Metrol. in-tov SSSR (Works of Metrological Institutes of the USSR), 1972, vyp. 136(196), pp 116-120 (from RZh-Radiotekhnika, No 12, Dec 72, abstract No 12D225 [résumé])

Translation: The paper presents the results of a study of a laser flow-meter based on a laser with rectangular ring cavity. Consideration was given to methods of increasing the sensitivity of the flowmeter, emission conditions, the zone of "frequency clamping" and losses in the cavity, and the effect of vibrations and remote equipment on laser operation. One illustration, bibliography of eight titles.

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USSR

UDC 616.927-036.8-07:616.155.302-076.5

BASHIROVA, D. K., Kazan' Institute for Advanced Training of Physicians imeni  
V. I. Lenin

"Blast-Transformation Reaction in Leukocyte Cultures of Persons Who Have Had  
Typhoid Fever"

Moscow, Zhurnal Mikrobiologii Epidemiologii i Immunobiologii, No 1, 1973,  
pp 50-54

Abstract: The ability of lymphocytes to change into blastocytes upon exposure to specific typhoid antigens was studied in cultures of human white blood cells. In the samples of typhoid fever patients on the 16-15th day of recovery, blast-transformation proceeded with a frequency index of about 21 in response to complex antigen and with an index of about 28 in response to Vi-antigen. In persons who had had typhoid fever within the last 2 years, blast-transformation occurred with the same frequency after stimulation with complex antigen and with a lower frequency (13) after stimulation with Vi-antigen. In individuals who had had the disease 2-10 years ago, blast-transformation was still lower in response to both antigen types (11 and 8) but significantly higher than in cultures without antigens (0.6) and in cultures of healthy individuals (3). Thus, after typhoid fever, blood lymphocytes retain "immunological memory" for a long period.

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USSR

UDC 547.26'118 + 546.185'131

MOSKVA, V. V., BASHIROVA, L. A., RAZUMOV, A. I., ZYKOVA, T. V., and  
SALAKHUTDINOV, R. A., Kazan Chemical-Technological Institute Imeni  
S. M. Kirov

"Reaction of Phosphorus Pentachloride With Aldehydes"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 3, Mar 73, pp 677-678

Abstract: It has been shown that a prolonged mixing (5 days) of the  
acetaldehyde with phosphorus pentachloride in benzene solution at room  
temperature yields  $\alpha$ -chloroalkylphosphoric acid dichloride, b.p. 53°/12 mm,  
 $d_4^{20}$  1.4810,  $n_D^{20}$  1.4570. Using chloral in an analogous reaction gives the  
dichloroanhydride of  $\alpha, \beta, \beta, \beta$ -tetrachloroethylphosphonic acid, b.p. 107°/12 mm,  
 $d_4^{20}$  1.7730,  $n_D^{20}$  1.5006.

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Pharmacology and Toxicology

USSR

UDC 577.1:615.7/9

TURAKULOV, Ya. Kh., NAZYROVA, V. Ye., BASHIROVA, N. S.

"Effect of Heliothrin on the Adenosine Phosphoric Acid Composition in the Liver of Animals"

Dokl. AN UzSSR (Reports of the Uzbek SSR Academy of Sciences), 1972, No 10, pp 38-39 (from RZh-Biologicheskaya Khimiya, No 7, 1973, Abstract No 7F2131)

Translation: On the 25th day after poisoning male rats with heliothrin, the concentration of the adenosine triphosphoric acid, adenosine diphosphoric acid and adenosine monophosphoric acid in the liver was  $1.66 \pm 0.06$ ,  $0.97 \pm 0.04$  and  $0.39 \pm 0.01$   $\mu$ M adenine per gram of liver tissue respectively instead of  $2.17 \pm 0.09$ ,  $1.28 \pm 0.05$  and  $0.46 \pm 0.03$  for the healthy animals. Thus, the absolute content of adenosine diphosphoric and adenosine monophosphoric acid was reduced by 23.6, 24.3 and 15.2% respectively after poisoning, but their percentage ratio (54.9:32.1:12.9) did not change in practice. It is proposed that an adenosine triphosphoric acid deficit in the liver of animals can lead to inhibition of the aliphatic acid oxidation process in the activation stage.

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USSR

UDC 629.78.002

BASHKATOV, A. F., SINYAYEV, V. I., OREKHOV, V. B.

"Influence of Seated Structural Elements of Circular Parts on Coaxial Error in a Joint"

Tr. Ufim. Aviats. In-t. [Works of Ufim Aviation Institute], No 21, 1971, pp 7-13, (Translated from Referativnyy Zhurnal, Raketostroyeniye, No 2, 1972, Abstract No 2.41.224 from the Resume).

Translation: This work states the problem of determining the influence of basic errors in the manufacture of parts (eccentricity of seated surfaces, radial clearance  $\Delta$  and end skew) on bending of axes with certain assembly plans. Evaluation of these plans from the standpoint of maximum possible skew of the axes is of significant interest for designers in selecting plans for joints and assigning tolerances for their manufacture. 4 Figures.

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USSR

UDC 669.24:538.27

ZELENIN, L. P., BASHKATOV, A. N., SIDORENKO, F. A., and GEL'D, P. V., Ural Polytechnical Institute imeni S. M. Kirov

"Magnetic Susceptibility of the  $\beta$ -Phase of the Ni-Al System"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 30, No 4, Oct 70, pp 740-745

Abstract: Measurements were made of  $\beta$ -phase specimens of the Ni-Al system to determine the magnetic susceptibility at 20-600° K and the electrical resistance at room temperature. X-ray-metallographic investigations and density measurements substantiated the results. A specific point on the composition-property diagrams is attained at 50 at. % Al. The magnetic susceptibility of  $\beta$ -phase specimens is related to the Pauli type. The density estimate of electronic states for the NiAl equiatomic alloy is  $-0.49$  1/ev·molecul.

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USSR

UDC 621.791.72

BASHKATOV, A. V., RYZHKOV, F. N., GLOTOV, V. S., GOL'TSOVA, V. P.

"Features of Welding of OT4 Titanium Alloy by an Oscillating Electron Beam"

Kiev, Avtomaticheskaya Svarka, No 11, Nov 72, pp 68-69

Abstract: The Voronezh Polytechnic Institute has studied the possibility of improving seam characteristics in OT4 alloy by the use of an oscillating electron beam. Studies were performed using specimens 2, 4 and 6 mm thick. Beam oscillation was varied between 5 and 2,000 Hz, both along and across the seam. Beam oscillation amplitudes reached 7.5 mm for longitudinal oscillation, 2.0 mm for transverse oscillation. Transverse oscillation causes grain size to equalize over the cross section of the seam, while longitudinal oscillation also reduces grain size. Longitudinal saw tooth oscillations are most effective in reducing grain size. Different welding speeds correspond to different optimal oscillation frequencies. Increased oscillating amplitude results in finer grain size, but the oscillating amplitude must be limited to a value dependent on welding rate: welding rates of 15, 25 and 35 m/hr correspond to optimal longitudinal saw tooth oscillation amplitudes of 4, 3 and 2 mm.

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USSR

UDC 532.516

BASHKATOV, M. V., SHABANOV, S. I., Novosibirsk

"Flow around a Sphere with a Transverse Stream of Matter with Low Reynolds Numbers"

Moscow, Zhurnal Prikladnoy mekhaniki i tekhnicheskoy fiziki, No 3, 1972, pp 103-109

Abstract: The analytical method of asymptotic expansions of Pearson and Proudman ["Expansions at Small Reynolds Numbers for a Flow Past a Sphere and a Circular Cylinder," J. Fluid Mech., Vol 2, Part 3, 237-262, 1957] was used to solve the problem (at least in the second approximation) of flow past a sphere with uniform blasts at  $R < 1$  with transverse flow of matter and a blast velocity less than the velocity of the oncoming flow. For more precise solution of the corresponding thermal problem, the analogous method proposed by A. Acrivos and T. D. Taylor ["Heat and Mass Transfer from Single Spheres in Stokes Flow," Phys. Fluids, Vol 5, No 4, 1962] was used. Expressions were obtained for the distribution of the current function and the velocity component and also for the drag coefficient of the sphere. The blast decreases the drag of the sphere. The effect of the blast increases as the Reynolds number increases.

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USSR

UDC 619:616.988.43-084.47

ANTONYUK, V. P., KRUGLIKOV, B. A., BARBASHOV, V. P., ~~BASHKATOV, S. F.,~~  
and MAKAREVICH, F. G., State Scientific Control Institute of Veterinary  
Preparations

"Significance of Specific Prophylaxis of Foot-and-Mouth Disease"

Moscow, Veterinariya, No 9, 1971, pp 46-48

Abstract: Experience gained in the USSR and other countries proved that planned regular vaccination and revaccination (when used together with other veterinary sanitation measures) play an important role in the control of foot-and-mouth disease (FMD), particularly since the immunizing activity of the vaccine has been enhanced by the addition of saponin. Planned FMD vaccination was begun in the USSR in 1954, when 12.6 million head of cattle in zones of epizootic outbreaks of the disease were immunized. More than 132 million animals were vaccinated in 1969. As a result, the disease and its foci have been almost completely eradicated in the RSFSR, Ukraine, Belorussia, and Moldavia. Vaccination and revaccination are of particular importance in the republics of Central Asia, Transcaucasus, Northern Caucasus, and some oblasts of Kazakhstan, where the system of long cattle drives and the possible mixing of large masses of animals makes them

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USSR

ANTONYUK, V. P., et al., Veterinariya, No 9, 1971, pp 46-48

particularly susceptible to epizootic outbreaks. An analysis of available data on immunization in the republics of Uzbekistan, Kirgizia, and Tadzhikistan reveals that vaccination there is conducted in an irregular and haphazard manner, with the result that large number of animals remain unvaccinated. It is important that a plan for the vaccination and revaccination of cattle during February-March, and again in August-September, and of smaller animals during the months of November-December, and again in April and November of the next year be adopted. Planned and complete immunization must be regarded as an important component in the measures for the eradication of FMD.

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UR 0482

Soviet Inventions Illustrated, Section I Chemical, Derwent, <sup>1/10</sup>

241694 MAGNESIUM ELECTROLYSER LINING is made up of  
a thin asbestos layer 1, furnace slag 2,  
heat resistant concrete 3, and firebricks 4. This  
reduces the liner cost by 8-15 times without adversely  
affecting thermal insulation.

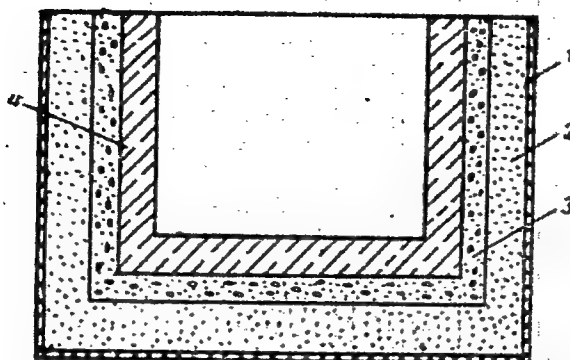
AUTHORS: Sprygin, A. I.; Kuz'min, V. V.; Bashkatov, V. V.;  
Volchkov, G. V.; Devyatkin, V. N.; Aleksandrova, V. A.;  
and Kolesnikov, V. A.

18

1/2

19750279

AA0040676



26.2.68 as 1221183/22-1. A.I. SPRYGIN et alia  
(25.8.69) Bul 14/18.4.69. Class 40c. Int.Cl.C22d.

2/2

19750280

20

USSR

UDC 621.438-596.6:536.2

ANTONOVICH, A. V., BASHKATOV, Yu. N., TRIFSIK, M. I., and RACHIM, E. V.

"Dynamics of Thermal Conditions of the Turbine at Various Stop Methods of the Gas Turbine Unit"

V sb. "Dinamika Teplov. Protsessov v Energetike i Tekhnol." [In the Collection "Dynamics of Thermal Processes in Power Engineering and Technology], Kiev, "Nauk. Dumka", 1971, pp 61-67 (from Referativnyy Zhurnal, No 6, Jun 72. 49. Turbostroyeniye. Abstract No 6.49.133)

Translation: The stop method with instantaneous turning off of the combustion chamber, usually applied on gas turbine units, results in a sharp change of the heat conditions of turbine parts reached by working gases, negatively affecting their reliability and life; the internal potentialities of the gas turbine unit practically make it possible to control the turbine heat conditions by a programmed change of the fuel consumption not only when starting but also when stopping; thanks to this fact, the thermal nonuniformity of turbine parts decreases. A simple and effective system of programmed stop, developed and put into practice on a gas turbine unit, made possible to increase the operational reliability of the unit. Four illustr., two biblio. refs.

1/1

USSR

UDC: 573.953+547.917+547.593.261

KLYASHCHITSKIY, B. A., PIMENOVA, V. V., BASHKATOVA, A. I., ZHELVAKOVA, E. G.,  
SOKOLOV, S. D., SHVETS, V. I., YEVSTIGNEYEVA, R. I., PREOBRAZHENSKIY, N. A.,  
Deceased, Moscow Institute of Fine Chemical Technology imeni M. V. Lomonosov

"Research in the Area of Derivatives of Asymmetrically Substituted Myoinositol.  
V. Complete Synthesis of sn-Myoinositol 1-Phosphate"

Leningrad, Zhurnal Obshchey Khimii, Vol 40 (102), No 11, Nov 70, pp 2482-2489

Abstract: A new method is used for synthesizing 1,2,4,5,6-penta-O-benzylmy-  
oinositol. The compound is separated into antipodes through diastereomeric  
orthoesters with D-mannose. Complete synthesis of the 1-phosphate of sn-myoin-  
ositol identical to the natural compound is carried out on the basis of 2,3,4-  
5,6-penta-O-benzyl-sn-myoinositol.

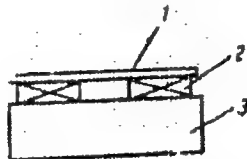
AA0044748 Bashkeyev, A.F.

UR 0482

Soviet Inventions Illustrated, Section II Electrical, Derwent,

2/70

243974 RECEIVER FOR ACOUSTIC SIGNALS. When an acoustic signal is applied to the diaphragm (1), eddy currents are generated in it. Their interaction with the magnet (3) magnetic field generates an e.m.f. in the coil (2). As the diaphragm mass is small, the receiver reproduces without distortion the shape of the applied signal within a wide frequency range.



20.10.67 as 1191772/18-10. BAKSHEEV, A.F. et alia.  
KUIBYSHEV PETROLEUM IND. RES. INST. (3.10.69) Bul 17/  
14.5.69. Class 42c. Int. Cl. B 06b.

1/2

31

19771511

AA0044748

AUTHORS: Bashkeev, A. F., Yeruslimskiy, I. N., Kalinkin, G. N., Kudashev,  
N. V., Laptev, V. V., Sakharov, Yu. I., Fedoseyev, A. N., Tslav, L. Z.

Kuybyshevskiy Nauchno-Issledovatel'skiy Institut Neftyanoy Promyshlennosti

2/2

19771512

USSR

UDC 621.378.35

BASHKIN, A.S., YURUSHEV, N.N.

"Output Parameters of  $CS_2 + O_2$  Chemical Laser"

Kvantovaya elektronika (Quantum Electronics), Moscow, No 5(11), pp 129-131

Abstract: An investigation was made of the operation of a  $CS_2 + O_2$  chemical laser with the object of clarifying the causes which affect its power and energy characteristics. The laser tube with a length of 80 cm and a diameter of 1.5 cm had an output window of  $CaF_2$ . The resonator was formed by two gold mirrors with a radius of curvature of 3 m. Output of the radiation was accomplished via an aperture 3 mm in diameter in one of the mirrors. A Ge-Au receiver cooled by liquid nitrogen was used for registration of the form of the laser pulse. Initiation of the reaction was accomplished by an electrical discharge with a duration on the order of 1 microsecond. The effect of the following factors on the output parameters of the laser was investigated: pumping energy, overall pressure, ratio of  $CS_2$  and  $O_2$ , and degree of helium dilution. A power of 4 kW at a pulse duration of 4 microsec was obtained. The authors thank A.I. Grayevskiy for interest in the work and useful discussions. 5 fig. 15 ref. Received by editors, 22 May 1972.

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- 67 -

USSR

BASOV, N. G., BASHKIN, A. S., IGOSHIN, V. I., ORAYEVSKIY, A. N., and YURYSHEV, N. N.

"Study of Vibrational Energy Transfer From OD to CO<sub>2</sub>"

Moscow, Pis'ma v Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, Vol 16, No 10, 20 Nov 72, pp 551-555

Abstract: The article reports the first detection of effective energy transport from the OD radical to CO<sub>2</sub> molecules, resulting in the laser effect in a mixture of O<sub>3</sub>, D<sub>2</sub>, and CO<sub>2</sub> at a wavelength of 10.6 microns. A simple analytic reaction model and the results of measuring the time characteristics of the laser generation pulse are used to evaluate the rate constant for vibrational-vibrational energy exchange between OD and CO<sub>2</sub>. The authors used two measurement methods -- according to the time delay of generation relative to the onset of initiation, and according to attenuation of the chemical laser generation signal. A laser tube 80 cm long and 1.5 cm in diameter was used in the experiment. Pumping was effected by two IFP-20000 lamps.

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BASHKIN, A. S.

Radio Eng

JPRS 56220

9 June 1972

UDC 621.378.33

STATE OF THE ART AND PROSPECTS FOR THE DEVELOPMENT OF  
QUANTUM FREQUENCY STANDARDS

[Article by A. S. Bashkin; Moscow, Kvantovaya Elektronika, Russian, No 5, 1971, pp 3-27]

A study was made of the modern state of the art with respect to the development of quantum frequency standards. The results achieved were systematized and compared, and the advantages and deficiencies of the basic areas of creation of quantum frequency standards in the microwave and optical wave bands were noted. The prospects for further development of quantum frequency standards and improvement of their characteristics connected either with improvement of the existing instruments or with the development of new ones were analyzed.

1. Introduction

At this time, microwave quantum frequency standards have been the best developed. This arises primarily from technical mastery of the microwave range and, secondly, from the fact that the beginning of the development of quantum electronics was connected with this range. On the basis of the results achieved in the development of cesium quantum frequency standards, the International Office of Weights and Measures took the transition between ends of the superfine structure  $F = 4$ ,  $m_F = 0$  and  $F = 3$ ,  $m_F = 0$  of the ground state  $^{91/2}$  of the  $^{133}\text{Cs}$  atom not disturbed by external fields as the primary frequency standard.

The quantum frequency standards in the radio frequency range are widely used in stationary navigation systems [1], the onboard systems of satellites and rockets, in doppler systems for measuring the trajectory of moving target [2, 3], for exact measurements of distances, and so on. For example, for applications in space flights and space navigation, Redden and terrestrial navigation, quantum frequency standards have been developed on the basis of a hydrogen quantum generator [4, 5].

USSR

UDC 621.373:530.145.6

BASHKIN, A. S., BELENOV, E. M., GONCHUKOV, S. A., ORAYEVSKIY, A. N.,  
PETROVSKIY, V. N., PROTSENKO, Ye. D.

"Stabilizing the Emission Frequency of a Gas Laser by the Method of Comparison With a Radio Frequency"

V sb. Kvant. elektronika (Quantum Electronics--collection of works),  
No 2, Moscow, 1971, pp 40-48 (from RZh-Radiotekhnika, No 7, Jul 71,  
Abstract No 7D117)

Translation: The authors study intermode spacing as a function of various laser parameters for a laser operating on a wavelength of 0.63 micron emitting three or two axial modes. It is proposed that certain properties of the frequency responses be used for stabilizing the emission frequency of a gas laser by the method of comparison of the intermode spacing with a radio frequency. A theoretical study is made of the resultant experimental data for the case of emission of three axial modes in the region of symmetric tuning. It is shown that a stabilized gas laser can be made with relatively long-term frequency stabilization, surpassing the results which have been achieved up to the present time. The absolute frequency stability of such a laser (in the case of high relative stability for long time intervals) will be determined by the

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USSR

BASHKIN, A. S., et al., Kvant. elektronika (Quantum Electronics--collection of works), No 2, Moscow, 1971, pp 40-48 (from RZh-Radiotekhnika, No 7, Jul 71, Abstract No 7D117)

shift in the center of the line of the atomic transition as a consequence of various factors. Six illustrations, bibliography of four titles.

2/2

USSR

UDC: 621.375.82

BASHKIN, A. S., ORAYEVSKIY, A. N.

"Photorecombination Lasers (Survey)"

Moscow, Kyant. elektronika--sbornik (Quantum Electronics--collection of works), No 1(13), "Sov. radio", 1973, pp 5-29 (from RZh-Fizika, No 8, Aug 73, abstract No 9D1071 by the authors)

Translation: The physical principles of the theory of operation of photorecombination lasers are examined. An investigation is made into methods of creating pulsed and continuous lasers. Possible ways of realizing specific systems are considered. The main emphasis is laid on the advantages of photorecombination lasers: a wide band of working wavelengths (from the UV to the IR), the possibility of frequency tuning (at least 10%), and high efficiency. Bibliography of 79 titles.

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USSR

UDC 621.378.33.016.35

BASHKIN, A. S., BELENOV, E. M., CONCHUKOV, S. A., ORAYEVSKIY, A. I.,  
PETROVSKIY, V. K., PROTSENKO, Ye. D.

"Stabilizing the Frequency of Gas Laser Emission by the Method of Comparison With a Radio Frequency"

Moscow, Kvantovaya Elektronika, No 2, 1971, pp 40-49

Abstract: The authors study the intermode spacing as a function of various parameters of a laser on a wavelength of  $0.63 \mu$  operating under conditions of emission of three or two axial modes. It is proposed that certain properties of the frequency characteristics be used to stabilize the emission frequency of a gas laser by the method of comparing the intermode spacing with a radio frequency. The resultant experimental data are theoretically studied for the case of emission of three axial modes in the region of symmetric tuning. It is shown how a stabilized gas laser can be made with a relative long-term frequency stability exceeding the results which have been attained up to the present time. The absolute frequency stability of such a laser (assuming high relative stability for long time intervals) will be determined by the displacement of the center of the line of the atomic transition due to various factors.

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USSR

UDC:532.546

BASHKIN, V. A., KOLINA, N. P., YUSHIN, A. Ya., Moscow

"Study of Heat Exchange on the Surface of a Two-Step Wedge in a Supersonic Stream"

Moscow, Mekhanika Zhidkosti i Gaza, No 5, Sep-Oct 73, pp 158-163

Abstract: Results are presented from a theoretical and experimental study of a boundary layer in the area of one local section of the surface of great curvature in the case of rarefaction flow. The theoretical study is performed within the framework of the classical theory of a laminar boundary layer in order to establish the primary trends in the distribution of local friction stress and local heat flow with increasing surface curvature. The experimental study was performed for the corner point on a stepped-angle wedge.

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USSR

UDC 531.715

RAYKHER, YE.M., and BASHKIN, YE. A.

"Photoelectric Tolerance Monitor"

USSR Authors' Certificate No 299737, Cl. G 01 b 11/02; filed 7 Apr 69, published 21 May 71 (from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 1, Jan 72, Abstract No 1A378P)

Translation: A photoelectric tolerance monitor is proposed which contains a mirror measuring device consisting of an illuminator, photodetector, a mirror measuring device consisting of an illuminator, photodetector, a mirror whose angle of rotation depends on variations in the measured quantity and the directed beam from illuminator to photodetector, and an electronic unit for processing signals from the photodetector. The monitor also contains a reference scale and an assembly for adjusting for appropriate tolerance limits, mounted in the path of the light beams from the rotating mirror to the photodetector. For the purpose of automating the monitoring process, the assembly for adjusting the appropriate tolerance limits takes the form of an immobile mirror and, mounted in front of it, a program carrier which is moved during a change in the tolerance limits and is immobile during monitoring. 3 illustrations.

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USSR

UDC: 612

KULLANDA, K. M. and BASHKIROV, A. A.

"Review of the Collection: 'Mechanisms of Evoked Brain Potentials' Edited by Prof. A. S. Batuyev and Published by 'Nauka,' Leningrad, 1971"

Leningrad, Fiziologicheskiy zhurnal SSSR im. I. M. Sechenova, No 10, vol 58, 1972, pp 1642-1643

Translation: The reviewed collection contains articles presented by a number of neurophysiologists in a symposium conducted in the city of Leningrad. Most of the participants in the symposium were Leningrad scientists discussing the problem of the mechanisms and origin of evoked potentials (EP).

The report by N. V. Golikov offers material concerning the pulse activity of individual neurons in extracellular recording and the EP of electroencephalograms, and attempts to make more precise the classification of EP, which the author subdivides into local "point responses" and "conducting responses" arising in identical structures. In the opinion of the reporter,

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KULLANDA, K. M. and BASHKIROV, A. A., Fiziologicheskii Zhurnal SSSR im. I. M. Sechenova, No 10, vol 58, 1972, pp 1642-1643

conducting responses, as opposed to local potentials, generates neuron pulse discharges, which in turn cause the appearance of local and conducting responses in various structures of the brain.

The proposed classification, however, seems imperfect to us since it does not take the important characteristics into account and further complicates the already complex problem of identifying the EP. In the opinion of N. V. Golikov, the characteristics of the EP are the important criterion to the level of the physiological state of certain zones in the brain and the criterion of the peculiarities of the pulsation going to these zones. As the reporter indicates, this limits the information of the EP.

P. O. Makarov reported new data characterizing the physiochemical changes of the nerve substrata on which the mechanisms of nerve pulse generation are based, and facts which indicate readjustments of white and nucleic structures of the nerve fiber under excitation.

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USSR

KULLANDA, K. M. and BASHKIROV, A. A., Fiziologicheskiiy zhurnal SSSR im. I. M. Sechenova, No 10, vol 58, 1972, pp 1642-1643

I. A. Peymer analyzed the time and space distribution of the EP, considering it to be the reflection of information processing in the human brain, by comparing the nature of the changes in the latent period, amplitude, and separate phases of the EP as functions of the strength, quality, and signal value of the stimulus. It detects the initial phases of the EP reflecting the changes in the characteristics of the stimulus (the sensory period). The final phases of the EP are connected with processes of estimating the signal value of the stimulus, while the later components of the EP, in the author's opinion, reflect the dynamics of the formation of the responding motor reactions. The author proposed an original hypothesis describing the physiological values of the processes resulting in the appearance of definite EP phases in the human brain.

A great deal of interest was aroused by the communication of A. S. Batuyev et al, devoted to an analysis of the origin of EP in the associative cortex fields, the associative responses (AR).

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USSR

KULLANDA, K. M. and BASHKIROV, A. A., Fiziologicheskiy zhurnal SSSR in.  
I. M. Sechenova, No 10, vol 58, 1972, pp 1642-1643

The author adduced data confirming the hypothesis to show that postsynaptic as well as presynaptic phenomena are the basis of the origin of the primary response. A description is given of the various parameters of associative responses, the topography of their distribution over the cortex, and the characteristics distinguishing the EP from secondary and primary responses, the connection between AR components and the presynaptic and postsynaptic processes. It is assumed that the AR reflect the phenomenon of adjusting the "attention" of the integrating system in the neurons which participate in afferent information processing.

I. N. Yanvareva examined the nature of the changes in the EP, the involvement reactions, and the background electrical activity in anoxic and postanoxic conditions of the brain, as well as the materials revealing the mechanisms of the genesis of individual PO phases.

The report of T. V. Kopylova showed that the dynamics of the EP has more complete informational value than data reflecting  
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USSR

KULLANDA, K. M. and BASHKIROV, A. A., Fiziologicheskii zhurnal SSSR im. I. M. Sechenova, No 10, vol 58, 1972, pp 1642-1643

the nature of background electrical activity variations in estimating the clinical shifts in the course of treatment of mental patients by pharmacological means.

Much valuable material was presented by N. N. Vasilevskiy in a work devoted to analyzing the correlation between the pulse activity of separate neurons and the total bioelectrical phenomena: the EP and the background electroencephalograms emitted from the surface as well as the depth of the cortex in the focus of maximum activity. The data obtained help clarify the determination of the functional organization of the neuronal substratum synaptic apparatus in which these processes are developed.

The investigations of N. Ye. Vasilevskaya and S. S. Musyashchikova contained an analysis of the evoked bioelectrical activity in the cortex and subcortical structures in response to adequate and electrical stimulation of interoceptors, and offered data on the paths of visceral impulses to the cortex of the large hemispheres.

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USSR

KULLANDA, K. M. and BASHKIROV, A. A., Fiziologicheskii zhurnal SSSR im. I. M. Sechenova, No 10, vol 58, 1972, pp 1642-1643

K. B. Shapovalova and B. I. Shiryayev developed separate aspects of the study of the impulse activity of neurons in the dorsoventral nucleus of the thalamus on the multimodal afferent impulses, and the investigations of R. S. Mnukhina uncovered definite rules for the dynamics of neuron impulse activity during development of the conditioned reflex.

In his work, M. M. Khananashvili used the EP as a method of studying the functional and structural organization of the conditioned reflex. He presented a mathematical analysis of the dynamics of a series of parameters of the primary responses to confirm the fact that the PO reflects the structural characteristics of the system, and characterizes the state of the analyzer systems for certain conditions in the process of the conditioned reflex development.

Multifaceted investigations of the PO and attempts to determine the functional significance of a given electrophysiological phenomenon were reported by Yu. G. Kratin, et al. A study was made

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USSR

KULLANDA, K. M. and BASHKIROV, A. A., Fiziologicheskii zhurnal SSSR im. I. M. Sechenova, No 10, vol 58, 1972, pp 1642-1643

of the PO parameters as functions of the background electroencephalogram under the action of various conditioned signals, the evolution of the PO with the development of the attenuated retardation, and the like. By analyzing the data obtained, Yu. G. Kratin came to the conclusion that the PO reflects only the essential changes in the functional state of the brain; the biological quality of the signal is not reflected in the dynamics of the PO, and the reaction is therefore of limited informational value.

The investigations of several authors participating in the work of the symposium were presented; these were done on animals in various stages of evolutionary development: molluscs, amphibia, reptiles, insects, etc. The results of these investigations permit examining the EP by a quite effective method for studying specific as well as more general questions in modern electrophysiology.

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USSR

KULLANDA, K. M. and BASHKIROV, A. A., Fiziologicheskiy zhurnal SSSR im. I. M. Sechenova, No 10, vol 58, 1972, pp 1642-1643

The materials of the symposium were perfected by exhaustive discussions. We note here the interesting comments of A. S. Batuyev, N. N. Vasilevskiy, A. A. Pirogov, and Yu. G. Kratin regarding the genesis of separate PO phases. The participants in the discussion then concluded that the dipole theory of the EP cannot satisfactorily explain the given facts.

Despite some dissatisfaction -- some methodological defects, the absence of investigations with intracellular recording of the neuron activity compared with EP phases -- the symposium was an important stage in the long development of the Leningrad school of electrophysiology.

Submitted, 7 May 1972

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1/2 021 UNCLASSIFIED PROCESSING DATE--27NOV70  
TITLE--STATISTICAL THEORY OF NUCLEATION KINETICS -U-  
AUTHOR--BASHKIROV, A.G. **B**  
COUNTRY OF INFO--USSR  
SOURCE--TEORETICHESKAYA I MATEMATICHESKAYA FIZIKA, 1970, VOL 3, NR 2, PP  
265-275  
DATE PUBLISHED-----70  
  
SUBJECT AREAS--PHYSICS  
TOPIC TAGS--NUCLEATION, FLUID PHASE KINETICS, NONEQUILIBRIUM FLOW  
  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--3003/0667 STEP NO--UR/0646/70/003/002/0265/0275  
CIRC ACCESSION NO--AP0129832  
UNCLASSIFIED

2/2 021

UNCLASSIFIED

PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0129832

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE KINETICS OF LIQUID PHASE EMBRYO GROWTH IS INVESTIGATED BY THE METHOD OF THE NONEQUILIBRIUM STATISTICAL OPERATOR. RESULTS ARE OBTAINED WHICH CONFIRM THE ZELDOVICH, FRENKEL PHENOMENOLOGICAL THEORY OF NUCLEATION KINETICS.  
FACILITY: FIZIKO-KHIMICHESKIY INSTITUT IM. L. YA. KARPOVA.

UNCLASSIFIED

1/2 018 UNCLASSIFIED PROCESSING DATE--090CT70  
TITLE--REACTIONS OF BENZYL ALCOHOL UNDER CONDITIONS FOR THE SYNTHESIS OF  
ALIPHATIC COMPOUNDS FROM CARBON MONOXIDE AND HYDROGEN --U-  
AUTHOR--(04)--KRYUKOV, YU.B., SHUIGIN, A.N., SHUMAYEVA, Z.T., BASHKIROV,  
A.N.  
COUNTRY OF INFO--USSR  
SOURCE--NEFTEKHIMIYA 1970, 10(1), 83-7  
DATE PUBLISHED--70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--BENZYL ALCOHOL, CATALYTIC ORGANIC SYNTHESIS, METAL OXIDE,  
CARBON MONOXIDE, HYDROGEN, GAS CHROMATOGRAPHY, BENZENE DERIVATIVE,  
ETHANOL, PROPANOL, HYDROGENATION, HYDROCARBON SYNTHESIS  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAME--1992/1883 STEP NO--UR/0204/70/010/001/0083/0087  
CIRC ACCESSION NO--AP0112863

2/2 018 UNCLASSIFIED PROCESSING DATE--09OCT70  
CIRC ACCESSION NO--AP0112863  
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. PHCH SUB2 OH-CO-H WAS PASSED OVER  
A FE SUB2 O SUB3-AL SUB2 O SUB3-V SUB2 O SUB5-K SUB2 O CATALYST AT  
450DEGREES-50 ATM DURING 12 HR AND THE PRODUCTS WERE DISTD. AND ANALYZED  
BY GAS LIQ. CHROMATUG. PHCH SUB2 OH WAS, IN PART, CONVERTED DIRECTLY TO  
PHME, BZH, AND BIBENZYL. CHAIN FORMATION TO 2,PHENYLETHANOL,  
3,PHENYLPROPANOL, AND HIGHER HOMOLOGS AND HYDROGENATION OF THESE TO THE  
CORRESPONDING HYDROCARBONS ALSO OCCURRED. FACILITY: INST.  
NEFTEKHIM. SIN. IM. TOPCHIEVA, MOSCOW, USSR.

UNCLASSIFIED

1/2 013 UNCLASSIFIED PROCESSING DATE--04DEC70  
TITLE--LIQUID PHASE SYNTHESIS OF ALCOHOLS FROM CARBON MONOXIDE AND  
HYDROGEN ON A MOLTEN IRON CATALYST -U-  
AUTHOR--(04)-BASHKIROV, A.N., MOROZOV, L.A., LOKTEV, S.M., KAGAN, YU.B.  
COUNTRY OF INFO--USSR  
SOURCE--NEFTEPERERAB. NEFTEKHIM. (MOSCOW) 1970, (4), 49-50  
DATE PUBLISHED-----70  
SUBJECT AREAS--CHEMISTRY  
TOPIC TAGS--ORGANIC SYNTHESIS, ALCOHOL, CARBON MONOXIDE, HYDROGEN,  
CATALYST  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY FICHE NO----FD70/605019/D07 STEP NO--UR/0318/70/000/004/0049/0050  
CIRC ACCESSION NO--AP0140901  
UNCLASSIFIED

2/2 013

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0140901

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE SYNTHESIS CONDITIONS WERE SIMILAR TO THOSE OF THE GAS PHASE PROCESS, BUT HIGHER SPACE VELOCITIES WERE USED FOR REDUCING THE WATER CONC. IN THE CATALYST ZONE. THE OPTIMUM CONDITIONS WERE AT 200 ATM, SPACE VELOCITY GREATER THAN OR EQUAL TO 10,000 HR PRIME NEGATIVE1, AND 160-62DEGREES. THE LIQ. PHASE PASSED THROUGH THE CATALYST IN A TUBULAR REACTOR, USING 1:10 CO-H, PROMOTED TYPICAL CATALYST, AND SYNTHINE, 8. 270-300DEGREES WITH HIGH ALCS. AS LIQ. MEDIUM. THE REACTION PRODUCTS AND PART OF THE LIQ. PHASE WERE CARRIED AWAY BY THE GAS.

UNCLASSIFIED

USSR

BASHKIROV, O. A.

"One Method of Description of Systems with Frequency Representation of Information Realizing Functions in Multivalued Logic"

Izbr. Tr. Vses. Mezhvuz. Simpoz. po Prikl. Mat. i Kibernet., Gor'kiy, 1967. (Selected Works of All-Union Interuniversity Symposium on Applied Mathematics and Cybernetics, Gor'kiy, 1967], Moscow, Nauka Press, 1973, pp 285-289 (Translated from Referativnyy Zhurnal Kibernetika, No 6, 1973, Abstract No 6V437, by the author).

Translation: This report studies systems with frequency representation of information. Each variable, taking on a certain set of discrete values, is set in correspondence with a signal of a given frequency. Operations are then performed on these variables, called the operations of "filtration," "addition" and "subtraction." They allow simple technical realization by electronic equipment. Certain properties of these operations are established, allowing them to be constructed of circuit elements and equivalent transforms to be performed. Some of these properties have analogues in Boolean algebra. Based on the properties established, the problem of synthesis of an arbitrary function in multivalued logic, fixed in the form of tables, is solved. Two

1/2

USSR

Bashkirov, O. A., Izbr. Tr. Vses. Mezhvus. Simpoz. po Prikl. Mat. i Kibernet., Gor'kiy, 1967, Moscow, Nauka Press, 1973, pp 285-289.

canonical forms are produced, one of which is similar to the RDNF in Boolean algebra. It is possible to produce the reduced form from the canonical form. Examples are presented of synthesis and reduction of functions. Functions of two-valued logic, for which all functions of one variable and a number of functions of two variables are produced, are studied in more detail.

USSR

UDC 671.1:620.193.1:621.034

DOKUCHAYEVA, V. A., and BASHKIROV, V. I., Moscow Institute of Steel and Alloys

"Hydroabrasive Erosion of Metals in an Acoustic Field"

Moscow, Izvestiya Vysshikh Uchebnykh Zavedeniy, Chernaya Metallurgiya, No 7, 1972, pp 135-138

Abstract: A method for calculating the hydroabrasive destruction of metals in an acoustic field is suggested. The method is based on the hypothesis that the energy necessary to erode the sharp edge is equal to the work required for the disruption of bonds between the atoms of the crystalline lattice. The application of the method is demonstrated by using a numerical example showing good agreement between calculated and experimental data. Two figures, thirteen formulas, six bibliographic references.

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USSR

UDC: 537.312.62

MATVEYEV, I. V., SHAPIRO, B. I., IGLITSYN, M. I., BASHKIROV, Yu. A.

"Investigation of Some Properties of the Mixed State of Superconducting Niobium in Alternating Magnetic Fields"

Kratkiye soobshch. po fiz. (Brief Reports on Physics), 1971, No 2, pp 3-11  
(from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6D509)

Translation: The authors present the results of research on determining the configuration of a magnetic field penetrating a superconducting cylinder. The method is developed by Bean in application to determination of the critical current density on the basis of Fourier analysis of the voltage induced in a flip coil containing a specimen placed in a magnetic field. According to this method, the odd harmonics of the induced voltage are related to the critical current density of the specimen  $j_c$ . Temperatures close to the critical temperature  $T_c$  are used. Curves of the magnetization and induced voltage are plotted for four specimens of niobium single crystals grown by the method of zone refining. Identical values of  $j_c$  are found for polished homogeneous specimens both from the magnetization curves

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MATVEYEV, I. V. et. al., Kratkiye soobshch. po fiz., 1971, No 2, pp 3-11

and from Fourier analysis of the induced voltage curves. A difference of more than an order of magnitude between the  $j_c$  values obtained by these two methods for a specimen with a rough surface is attributed to the fact that a shallow-penetrating alternating field is sensitive only to the destroyed layer which gives the true localized critical current density.  
A. K.

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Physical Properties

USSR

UDC 620.179.14

KUZNETSOV, I. A., BASHKIROV, YU. P., STRELYANOV, V. YE.

"Magnetic, Electric, and Mechanical Properties of 38KhS Steel after Isothermal Quenching in Connection with Developing a Nondestructive Control Technique"

Sverdlovsk, Defektoskopiya, No 1, 1971, pp 96-105

Abstract: Results are presented from a study of the magnetic, electric, and mechanical properties and structure of three 38KhS steel melts as a function of different conditions of isothermal quenching in alkali melts. A study was made of the effect of variation of the chemical composition (within the limits of the type of steel) and the initial structure on the physical properties of the steel. Recommendations are presented for the development and application of nondestructive methods of controlling the structure and mechanical properties.

The indicated properties of the 38KhS steel melts show that there is a significant difference between these properties of the investigated steel both in the initial state and after isothermal quenching. Variation of the chemical composition within the limits of the type of steel has a significant effect on its properties. The results obtained permit establishment of more correct heat treatment conditions characterizing the high operating qualities of the

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USSR

KUZNETSOV, I. A., et al., Defektoskopiya, No 1, 1971, pp 96-105

parts and products made of 38KhS steel. The conclusion is confirmed that in the case of isothermal quenching only in a narrow temperature range of the isothermal medium, it is possible to obtain sufficiently high values of the impact toughness for the given values of the hardness. The time of isothermal holding should be 10 to 20 minutes. The coercive force, the saturation magnetization, and the reluctivity can be used as the magnetic parameters when controlling parts made of 38KhS steel undergoing isothermal quenching.

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USSR

UDC 547.341

MOSKVA, V. V., BASHIROVA, L. A., and RAZUMOV, A. I., Kazan' Chemico-  
Technological Institute imeni S. M. Kirov

"Phosphorylation of Tertiary Alcohols With Phosphorus Pentachloride"

Leningrad, Zhurnal Obshchey Khimii, Vol 41, No 11, pp 2,577-2,578

Abstract: The reaction of tertiary butyl alcohol with phosphorus pentachloride in benzene led to the formation of an excess of a crystalline complex, which, upon decomposition with  $\text{SO}_2$ , yielded  $\beta$ -chloroisobutylphosphonyl dichloride. An analogous reaction between dimethylethylcarbinol and  $\text{PCl}_5$  was observed.

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USSR

UDC 547.341+547.381

MOSKVA, V. V., BASHIROVA, L. A., ZYKOVA, T. V., and RAZUMOV, A. I.

"Reaction of Phosphorus Pentachloride With Acrolein Acetals"

Leningrad, Zhurnal Obshchey Khimii, Vol XL, No 12, Dec 70, p 2764

Abstract: The unsymmetrical double bond and acetal group, and the two reaction centers of acrolein acetal (I), can be phosphorylated with phosphorus pentachloride. The reaction is assumed to begin with replacement of the alkoxy group by a halogen, to form the  $\alpha$ -chlorallyl ethyl ether (II), which may be either directly phosphorylated by the phosphorus pentachloride, or else isomerized  $\gamma$ -chloro- $\alpha$ -propenyl ethyl ether (III). Owing to some polarization of the double bond in (II) and (III), electrophilic attack is directed in both cases to the  $\beta$ -carbon atom with formation of a single complex, decomposition of which with gaseous sulfur dioxide leads to formation of  $\alpha$ -chloromethyl- $\beta$ -ethoxyvinylphosphonic acid dichloride (V).

Heating of (I) in 80 ml of benzene at 8-10° for 1 hr, followed by addition of phosphorus pentachloride, heating to room temperature, agitation at 30° for 12 hr, decomposition by gaseous sulfur dioxide and finally removal of solvent and volatile products, yielded 65.6% of  $C_5H_8Cl_3O_2P$ .

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USSR

UDC 547.26'118,541.49

BASHKIROV, S. H., KURAMSHIN, I. YA., MANAPOV, R. A., MURATOVA, A. A., SAFIN, I. A., and KHRAMOV, A. S., Kazan' State University, Kazan'

"The Effect of the Ligand Size on the Magnitude of the Quadrupole Splitting of the Nuclear Gamma Resonance Spectra of S-Alkyl Esters of Thio- and Dithiophosphorus Acids with Stannic Tetrahalides"

Moscow, Zhurnal Strukturnoy Khimii, Vol 14, No 5, Sep-Oct 73, pp 935-937

Abstract: The nuclear gamma resonance spectra of compounds  $R_2P(Y)(SR')/2 \cdot SnX_4$  ( $R = Me, Et, n-Pr, i-Pr, Bu, EtO, n-PrO, i-PrO, BuO$ ;  $R' = Me, Et, Pr$ ;  $Y = O, S$ ;  $X = Cl, Br$ ) were determined. With an increasing volume of R in  $R_2P(O)(SR')$  of the complex, an electrical field gradient at the Sn nucleus developed which caused quadrupole splitting. This effect depended on the geometric configuration of the complexes and also on the spatial configuration of the organic ligand. In complexes  $R_2P(S)SMe/2 \cdot SnX_4$  ( $R = Et, i-Pr, n-Bu$ ), quadrupole splitting did not take place irrespective of the volume of R, although the donor-acceptor interaction was smaller for  $S \rightarrow Sn$  than for  $O \rightarrow Sn$ .

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BASHKIROV, V. I.

(Article by Candidate of Technical Sciences V. I. Bashkirov: "Real bubbles find their way to a good thing", Moscow, Nauka [Science], No. 17, 1973, pp. 55-60.)

MECHANICAL USE OF CAVITATION BUBBLES

Engineering knows many examples of how a harmful effect has found a useful application.

A sparking electric contact is quickly destroyed, but this well is the basis for electroerosion machining of metal. Friction sometimes literally blurs the surface of adjacent objects and complicate mutual movement -- hence, the idea for contact welding.

In our time cavitation has become this type of "evil" turned to good. After destroying many ship's propellers, sometimes it destroys the burrs on stamped parts, it rejects defective diamond crystals, it cleans metallic surfaces, purifies water, and so on.

What is a Gas Bubble Capable of?

On a hot summer day when drinking a glass of carbonated water, each of us has observed how the gas bubbles separate from the liquid. The bubbles rise, float upward and break with a barely audible sound.

It is difficult to check that under defined conditions the gas bubble can have an enormous destructive force. Actually, before the beginning of our century no one thought that a gas bubble was capable of destruction -- and in a quite short period of time -- of any material.

The behavior of bubbles in a liquid became of interest to scientists soon after the appearance of ships with steam engines. The propellers of high speed ships have failed after a few hundred hours. After prolonged operation the brass propeller resembled a sponge. Its surface was torn by numerous cavities resembling the crater of a volcano in miniature, and holes with sharp edges have appeared through certain sections of the propeller.

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JPRS 60974  
14 January 1974

1/2 023 UNCLASSIFIED PROCESSING DATE--23OCT70  
TITLE--FUNCTIONING OF THE MOTOR APPARATUS IN ADOLESCENTS OF VARIOUS AGES  
DURING INDUSTRIAL TRAINING -U-  
AUTHOR--BASHKIROVA, L.S.  
COUNTRY OF INFO--USSR *B*  
SOURCE--GIGIYENA I SANITARIYA, 1970, NR 6, PP 31-34  
DATE PUBLISHED-----70  
SUBJECT AREAS--BEHAVIORAL AND SOCIAL SCIENCES, BIOLOGICAL AND MEDICAL  
SCIENCES  
TOPIC TAGS--EDUCATION, MUSCLE PHYSIOLOGY, ELECTROMYOGRAPHY  
CONTROL MARKING--NO RESTRICTIONS  
DOCUMENT CLASS--UNCLASSIFIED  
PROXY REEL/FRAE--3001/0829 STEP NO--UR/0240/70/000/006/0031/0034  
CIRC ACCESSION NO--AP0126506  
UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0126506

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE STATE OF FUNCTIONING AND DYNAMICS OF THE MOTOR APPARATUS WERE INVESTIGATED IN GIRLS OF DIFFERENT AGE GROUPS (15, 16, 17, AND 18 YEARS) UNDER WORKING CONDITIONS PREVAILING IN THE COURSE OF TRAINING AT THE SEWING TECHNICAL SCHOOL. THE AUTHOR STUDIED THE MAXIMAL STRENGTH AND ENDURANCE OF THE RIGHT HAND MUSCLES, TOOK RECORD OF THE TREMOR OF THE INDEX AND ELECTROMYOGRAMS OF THE MUSCLES OF THE RIGHT ARM AND THAT OF THE SHOULDERS DURING IRONING. A LOWER WORKING CAPACITY AND SMALLER FUNCTIONAL ABILITIES WERE NOTED IN THE MOTOR APPARATUS OF 15-16 YEAR OLD ADOLESCENTS AS COMPARED WITH THOSE AGED 17-18. FACILITY: INSTITUT GIGIYENY TRUCA I PROFZABOLEVANIY, G. GOR'KIY.

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UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0128588

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SOLY. DIAGRAM OF (NH SUB4) SUB2 SO SUB4 NEGATIVE SC SUB2 (SO SUB4) SUB3 NEGATIVE H SUB2 O SYSTEM AT 25DEGREES IS PRESENTED. THE SYSTEM FORMS NH SUB4 SC(SO SUB4) SUB2 (I) AND (NH SUB4) SUB3 SC(SO SUB4) SUB3 (II). I, HAVING NS ALPHA 1.560 PLUS OR MINUS 0.003 AND GAMMA 1.565 PLUS OR MINUS 0.003 IS THERMALLY STABLE SMALLER THAN OR EQUAL TO 390DEGREES, DECOMP. AT LARGER THAN 390DEGREES TO SC SUB2(SO SUB4) SUB3 AND AT LARGER THAN 850DEGREES, TO SC SUB2 O SUB3. THERMALLY LESS STABLE II DECOMP. AT 330-405DEGREES TO I AND THEN TO SC SUB2(SO SUB4) SUB3 AND FINALLY TO SC SUB2 O SUB3.  
FACILITY: MOSK. GOS. UNIV. IM. LOMONOSOVA, MOSCOW, USSR.

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Soviet Inventions Illustrated, Section I Chemical, Derwent,

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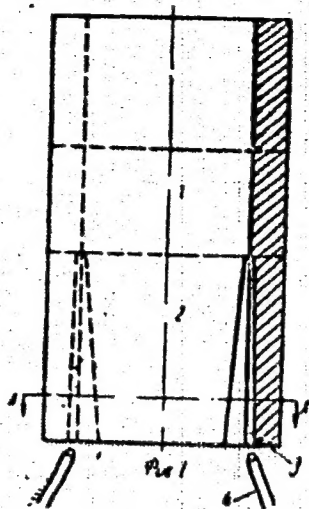
240199 CONTINUOUS CASTING MOULD has two zones, top (1) and bottom (2), both profiled to suit the billet cast though in the corners of the lower zone there are downwards expanding slots (3) or grooving arranged so that the rib portions of the billet opposite these slots do not come into contact with the walls of the mould. Special jets arranged in these corners spray on water or steam for cooling purposes. The height of the two mould zones, depth and width of the slots in the lower zone are all determined by the section and casting rate of the billet. All four ribs are cooled to the same extent.

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AUTHORS: Druzhinin, V. P.; Bashkov, V. A.; and

Martynov, O. V.

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7.2.66 as 1053520/22-2. BRUZHININ, V. P. et al. (18.8.69)  
Bul 12/21.3.69. Class 31 b 2. Int. Cl. B 22d.

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AND AUTOMATION TECHNOLOGY

Automata

USSR

UDC 51:621.391

BASHLAKOV, Ye. P.

"Use of the Abstract Theory of Automata for Minimizing Multiregister Automata"

Kiev, Teor. kibernetika--Sbornik (Theoretical Cybernetics -- Collection of Works), No 5, 1970, pp 59-67 (from Referativnyy Zhurnal -- Matematika, No 6, June 71, Abstract No 6V417, by G. Blokhina)

Translation: The author begins with the representation of a discrete computer in the form of a pair of automata -- a control and operational automaton. The control automaton is considered as a finite automaton with a terminal state characterizing the end of operation of the corresponding microprogram. The operational automaton is an abstract automaton with an infinite set of states, which, in the view of the author, impedes applying the abstract theory of finite automata to optimize it. The article indicates that abstract-automata methods can be quite effectively employed also in minimizing operational automata. The author's approach is based on representing the operational automaton in the form of a multiregister automaton. The feasibility of employing these methods under this approach is ensured by the rational restriction of the set of states of the multiregister automaton.

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